Commencement of the Tohoku Medical Megabank Project

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The Great East Japan Earthquake caused catastrophic damage, especially in the Pacific coast of the Tohoku region. Tohoku University, based in this area, strives to contribute to the reconstruction from the damage in a creative manner. In this context, Tohoku University proposed the Tohoku Medical Megabank project to develop future-oriented medical services while advancing the reconstruction process, and is working towards the project' s acomplishment.

The Tohoku Medical Megabank project will create a composite biobank that integrates medical and genome information, while carrying out multiple health study programs in the affected areas. We hope this biobank project will draw more medical practitioners to the Tohoku area, realize the restoration of local medical services, promote business-university partnerships, and generate employment in related fields. Furthermore, our goal through this project is to establish a foundation for future-oriented medicalservices based on genome information.

To implement this project, Tohoku University launched the Tohoku Medical Megabank Organization (ToMMo) on February 1,2012. Its activities are broadly divided into three areas: development of a composite biobank; establishment of a medical system to support the community; and the training of highly specialized professionals and experts. We expect to continue this project for ten years.

During this project, we will carry out health studies of the people in areas affected by the Great East Japan Earthquake and report the findings to the participants of the study. Also, we will work to establish a system of dispatching physicians on a rotation basis to ensure access to physicians in the affected areas. Further still, we will promote the systematic digitization and networking of medical information, and cooperate on the development of a community-wide medical records system that will prevent further losses of patient records.

These activities are expected to contribute significantly to the realization of future medicine in which medical care and disease prevention efforts will be tailored to each individual. In addition, through this project, we will train capable professionals and experts who will challenge themselves in various new research areas.

We are committed to making this long-term large-scale project a success. This requires the support of many people. We appreciate your kind cooperation.

TO HOKU MEDICAL MEGABANK ORGANIZATION

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Organization

Tohoku Medical Megabank Organization was established on February 1, 2012 by Tohoku University as a 10-year project. The organization consists of 6 research departments, a Department of Public Relations and Planning, a Department of Administration, nineteen groups which promote the projectindividualiy, an Ethics Committee, and an Advisory Board.

Prof. **Masayuki Yamamoto** Executive Director, Professor, Medical Biochemistry

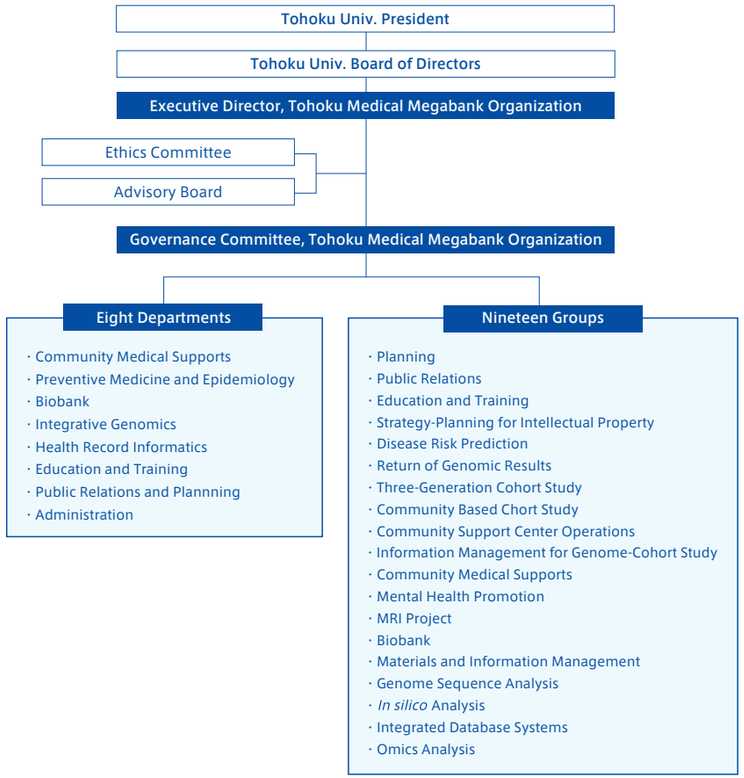
Masayuki Yamamoto, Ph.D. M.D., is a professor at Graduate School of Medicine, Tohoku University, Japan. After the graduation from Tohoku University, he researched biochemistry at Northwestern University and Public Health at Johns Hopkins University, U.S.A. He has shown strong leadership as Vice President of Tohoku University from 2008 to 2011 and as Dean of Graduate School of Medical Sciences from 2008 to 2012. He was awarded the Medal with Purple Ribbon from the Emperor of Japan in 2012 for his support in local medical services after 3.11.

Prof. **Nobuo Yaegashi** Special Advisor to the Exective Director, Professor, Gynecology and Obstetrics

Nobuo Yaegashi, M.D. is a professor at Graduate School of Medicine, Tohoku University, Japan. He is also appointed as Director of Tohoku University Hospital, and Vice President of Tohoku University. With research experience abroad at Fred Hutchinson Cancer Research Center, Seattle, U.S.A., he has been worked around Tohoku area for a long time as an enthusiastic medical doctor of Gynecology and related fields.

Prof. **Shigeo Kure** Deputy Executive Director, Professor, Pediatrics

Shigeo Kure, Ph.D. M.D., is a professor at Graduate School of Medicine, Tohoku University, Japan. After his graduation from Tohoku University, he completed his Pediatric Residency at Sendai City Hospital. He has been leading a study team supported by a grant from Ministry of Health, Labor and Welfare, which survey the child health in the disaster area, since 2012. He has served as Vice Director of Tohoku University Hospital from 2012 to 2014.



Mission and Outline

■ Mission

Tohoku University Tohoku Medical Megabank Organization was founded to establish an advanced medical system to foster the reconstruction from the Great East Japan Earthquake. The organization will develop a biobank that combines medical and genome information during the process of rebuilding the community medical system and supporting health and welfare in the Tohoku area. The information from the brand-new biobank will create a new medical system, and, based on the findings of its analysis, the organization aims to attract more medical practitioners from all over the country to the area, promote industry-academic partnerships, create employment in related fields, and restore the medical system in Tohoku.

■ Project Outline

A blueprint for Tohoku University Tohoku Medical Megabank Organization is a ten-year project including three main activities: a biobank combining medical and genome information; an online platform for the coordination of community medical information; and training program designed for a varieties of highly specialized professionals and experts such as researchers of bioinformatics and science communicators. The biobank to be developed will be utilized to analyze the local heredity information so that it can establish an advanced medical system based on genome information with cutting-edge information and communication technology.

■ Long-term Health Study

The project will conduct a long-term health study of residents living in communities which suffered major damage from the Great East Japan Earthquake and will report the findings to the respective residents with their personal information carefully protected. It will also establish a system of dispatching physicians on a rotation basis to health care providers in the region. For the establishment of a platform to coordinate community medical information, the project will organize the systematic digitization and networking of medical information in the local hospitals, and as a result, create a database uniforming medical records in the region while preventing patient records from being lost ever again because of a possible disaster in future.

■ Community Medical Support

We believe that the project will ultimately help to secure and rotate medical practitioners in and to the Tohoku disaster area, promote industry-academic partnerships, create employment in medical related fields, and restore the medical system in the disaster area.

■ Genome Biobank

The Tohoku Medical Megabank project is a part of the national project to reconstruct Tohoku area. It aims to become a centripetal force for the reconstruction of the entire Tohoku region by developing the genome biobank project. The necessity of such biobank project had been pointed out in recent years. With the combination of medical information and genome information, Tohoku Medical Megabank,will develop an exceptional biobank in the Tohoku region which contributes to the restoration of medical services in the disaster area and revitalizes related industries.

■ Into the future

Tohoku University School of Medicine has fulfilled a central role in dispatching medical practitioners to the Tohoku area, in particular, Miyagi Prefecture. Similar to other former imperial universities, Tohoku University in general focuses its efforts in research. However, given also that no other university has a medical school in Miyagi Prefecture, Tohoku University continues to offer more support to the community medical system to meet the local demand. This project is intended to further improve the quality of medical services in Tohoku area by directly participating in the rebuilding of the community medical system and creating an advanced medical base from a long-term perspective.

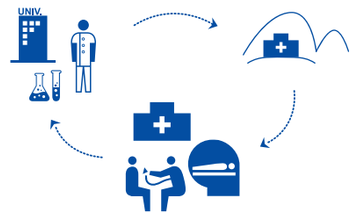
Activities

Tohoku University Tohoku Medical Megabank Organization (ToMMo) was founded to lead the Great East Japan Earthquake reconstruction efforts through the development of advanced medical systems.
The Miyagi Prefecture in the Tohoku region is the base location for all its programs.

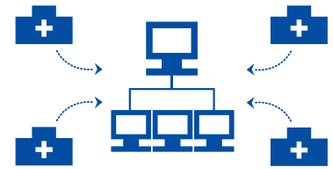
■ Medical Support for Disaster-stricken Areas

Disaster-resilient electronic networks will be established for medical facilities in all areas of Miyagi Prefecture which suffered damage from the disaster of 3.11. Networks and related systems to support community health care services and provide continuous medical care will be developed. Such electronic environments will also aid in solving the problem of physician shortages.

01.
Community Medical Support



02.
Systematic Digitization and Networking of Medical Information



■ Genetic Epidemiology Research Program

A long-term health study will be conducted to watch over the health of the residents in the disaster-stricken areas. ToMMo will store the massive data from the study in its biobank database. Through genome analysis and other activities, these databases will be developed further and shared among researchers in the hopes of contributing to future medical advancements.

01.
Long-term Health Study Program

02.
Biobank Program

03.
Genome Analysis and Database Creation

■ Special Educational Program for Personalized Medicine

ToMMo will offer an extensive educational program for professionals who will support newly developed medical practices based on genome analysis and information science. These highly specialized individuals will serve actively at the frontline of community-rooted networks.